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BIENNIAL REPORT

OF THE

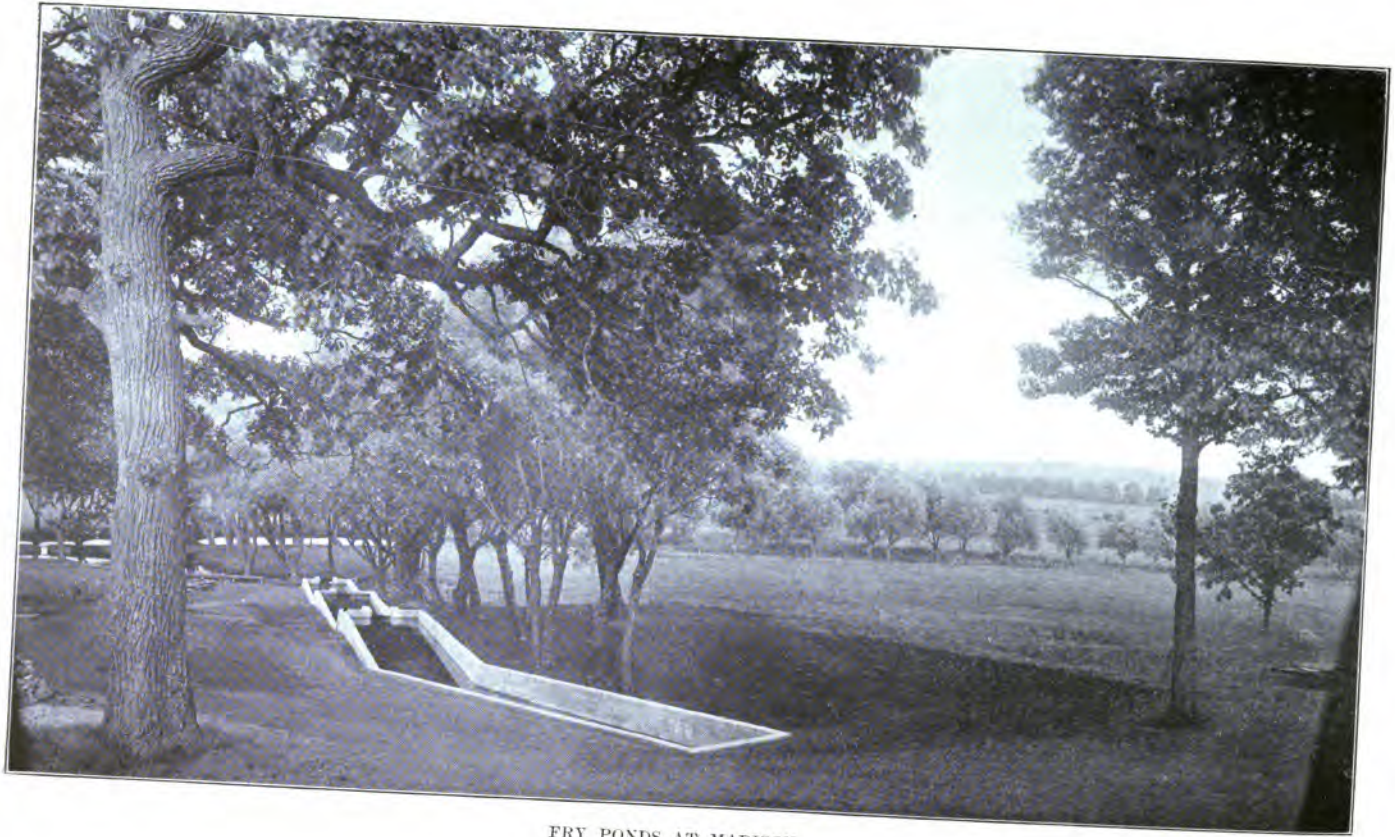
COMMISSIONERS OF FISHERIES

OF WISCONSIN

FOR THE

Years 1913 and 1914

MADISON, WIS.
DEMOCRAT PRINTING COMPANY, STATE PRINTER
1914



FRY PONDS AT MADISON.

BIENNIAL REPORT

OF THE

COMMISSIONERS OF FISHERIES

OF WISCONSIN

FOR THE

Years 1913 and 1914

MADISON, WIS.
DEMOCRAT PRINTING COMPANY, STATE PRINTER
1914

COMMISSIONERS

THE GOVERNOR, *ex officio.*	
JABE ALFORD, *President*	Madison
A. L. OSBORN, *Vice President*	Oshkosh
E. A. BIRGE, *Secretary*	Madison
JOHN C. BURNS	La Crosse
B. C. WOLTERS	Appleton
JAS. O. DAVIDSON	Madison
EDW. F. KILEEN	Wautoma

JAMES NEVIN, *Superintendent of Fisheries*	Madison

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LETTER OF TRANSMITTAL

Hon. **Francis E. McGovern,**
Governor of Wisconsin.

Sir:—In conformity with law, we have the honor to transmit the biennial report of this department for the fiscal years ending June 30, 1913, and June 30, 1914, respectively.

THE BAYFIELD HATCHERY.

COMMISSIONERS' REPORT

The Commissioners of Fisheries present herewith their report for the years 1912–13, 1913–14.

The biennial period has been one of marked advance in the work of the Commissioners. The hatcheries at Sturgeon Bay and Sheboygan, authorized by the legislature of 1911, came into full use in the fall of 1912. The report of the superintendent shows that by their aid marked success has been reached in the work of raising fry to supply the commercial fisheries of the Great Lakes. The number of fry that can be turned out from these hatcheries and that at Bayfield is practically limited by the number of eggs that can be collected. In the case of lake trout and blue-fin the number collected depends on the vicissitudes of weather during the spawning season and the success of the fishermen whose catch is utilized for spawn-taking. In this connection attention is directed to the recommendation that the closed season on Lake Superior be extended to cover the entire month of October.

The Commissioners have received from the United States Bureau of Fisheries during the biennial period ten million whitefish eggs and seven million lake trout eggs. The Commissioners express their thanks to the Bureau of Fisheries for this assistance.

The problem of renewing the stock of whitefish in the Great Lakes is doubtless the most difficult one before the Commissioners. There is apparently no source from which to obtain the large number of eggs needed. The United States Bureau of Fisheries is able to furnish a limited supply from Lake Erie, but this is only a small fraction of the number that should be planted. No source of supply of these eggs is at present in sight which will furnish them in sufficient numbers.

During the biennial period the Commissioners have established a hatching station at Spooner, at an expense of about $2,000. In this station some 36,000,000 pike eggs were hatched in the spring of 1914. The location of the station makes this a very advantageous point from which to ship fry to the northwestern part of the state.

Improvements have been made at the various hatcheries and all have been kept in good repair. Attention is directed to the work done at Madison and Wild Rose, as reported by Superintendent Nevin.

At the meeting of the Commissioners, held January 8, 1914, the following resolutions were adopted, which express the policy which they believe should be adopted in regard to the control of fisheries in international waters.

"Resolved: 1. That we advocate now, as in the past, the principle of federal control of fisheries in international waters.

2. That we request the senators and representatives of Wisconsin in Congress to vote for the adoption of the uniform and common international regulations, proposed for the regulation of fisheries in waters common to the United States and Canada. This action is requested in order that the fisheries treaty, negotiated between the United States and Great Britain in 1908, may be put into operation.

3. That the secretary of the Commissioners be directed to communicate these resolutions to the Wisconsin senators and representatives."

For some time the railroad companies have objected to hauling the old wooden fish car Badger No. 1 on some of their trains, especially on trains hauling steel cars. During the last session of the legislature a law was enacted prohibiting the hauling of wooden cars between steel cars. This practically did away with any use we could make of the old car and we therefore disposed of it when the opportunity presented itself.

The Commissioners received from the Canadian Government an offer of $3,500 for the old fish car "Badger No. 1." This car was built in 1893 and therefore has been over twenty years in use by the state. It has been kept in complete repair and is still in good condition. They, therefore, deemed it to the advantage of the state to accept the offer made by Canada and agreed to sell it, subject to the approval of the legislature. With the approval of the Attorney-General of the state the car was delivered to the representative of Canada, and the money paid for it was deposited *in escrow*. The matter will be brought before the legislature and authority will be asked to complete the sale; to transfer the title of the car to Canada; and to grant the price paid for it to the use of the Commissioners.

One of the most interesting features of the commercial fisheries of the past few years has been the appearance of the steelhead trout in the catch of fish from Lake Michigan, and the rapid increase of this fish. Superintendent Nevin discusses the possible connection of this fish with the rainbow trout planted in the streams that flow into the lake.

He also mentions another fact of interest in the commercial fisheries, viz.: the rise into importance of the carp. The annual value of this fish among the commercial fishes of the Great Lake region is surpassed only by that of the lake trout, the wall-eyed pike, and the lake herring. It has thus become one of the largest sources of the food that our waters supply.

The Commissioners express to the railroads of the state their thanks for the aid given in the distribution of fry. This transportation of fry has now become one of the large items of expense and is one which increases as the work of the Commission grows. The inland fishing of the state comes to depend more and more on planted fry and the work of carrying these from the hatcheries to the streams and lakes has grown rapidly and will increase still more in the future.

In this connection it must be remembered that the work of the Commissioners has certain indirect relations to the prosperity of the state, possibly quite as great as the direct ones. The maintenance of the inland fisheries is one prime factor in attracting strangers to Wisconsin for their vacations and in encouraging our own citizens to out-of-door life in summer. That fishing has been maintained in spite of the great increase of fishermen is in large measure due to the output of our hatcheries. But this output must be greatly increased in the future if the stock of fish is to be kept up notwithstanding the rapidly growing drafts upon it.

This consideration leads to a brief statement of the needs of the Commissioners. In their judgment the state is now well provided with hatcheries and these are well located for their work. There are now nine hatcheries, including the station at Spooner. The maintenance of these hatcheries and the care of the rapid increase of fry necessarily calls for more money annually. The annual income for working expenses must, therefore, grow if the hatcheries are to turn out as great an output as they are capable of yielding. With the best efforts of the Commissioners and with the best and most advantageous use of the hatcheries, this output will always fall far short of the demands and of the needs of the state.

With the increase in the numbers of the hatcheries and of the work of propagating fish the duties of the Commissioners, and especially those of the President of the Board, have increased. They have been glad to give the necessary time to the service of the state and they have attempted to manage the business entrusted to them efficiently and economically. The expenses of the Board for the fiscal year 1913 were $360 and in 1914, $400.

JABE ALFORD,
A. L. OSBORN,
E. A. BIRGE,
B. C. WOLTERS,
JAS. O. DAVIDSON,
JNO. C. BURNS,
EDW. F. KILEEN,
Commissioners of Fisheries.

SUPERINTENDENT'S REPORT

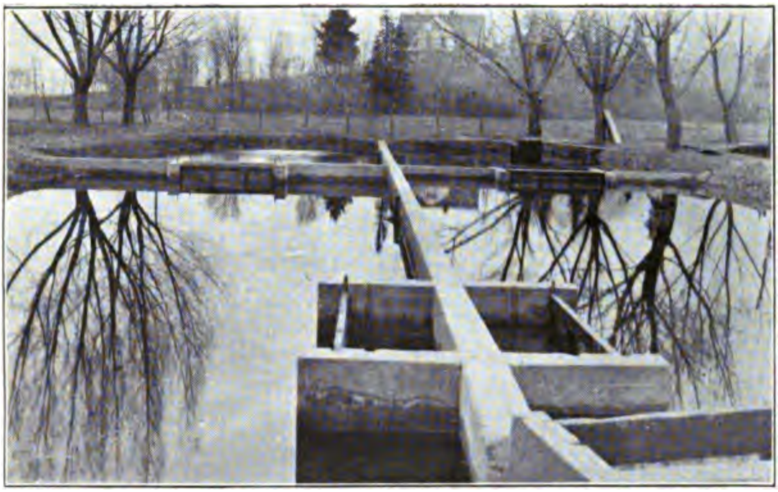
To the Commissioners of Fisheries.

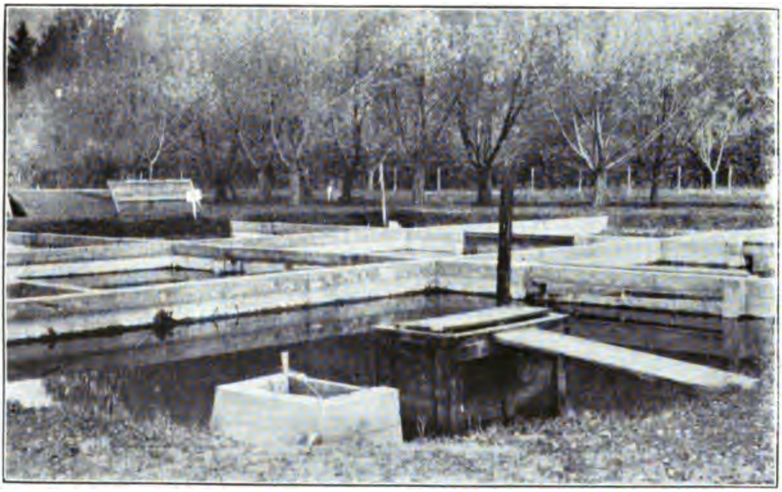
Gentlemen:—The three natural industries from which a state derives its wealth are agriculture and forestry, mining, and fishing. Upon these industries all others are dependent for their raw material. Splendid progress and advancement has been made in agriculture and forestry and in mining, and measures have been advanced and legislation passed to protect and conserve the natural resources connected with these two industries.

It is possible to perpetuate our fishing industries by sufficient appropriations for the artificial propagation of fish and by the enactment and enforcement of adequate laws; but the suggestions for the laws should not come from the individual or corporation that is interested in any particular locality, but should come from a commission that is thoroughly familiar with conditions all over the state, and through its investigations is competent to make suggestions that will build up and never in any way destroy any part of the fishing interest. Nearly all the trouble that has come up in connection with legislation on the fisheries question has been caused by the desire of those interested in some special phase of the fishing industry, or in some particular locality, to have laws passed that will assist them in some way, regardless of the effect that the passage of such legislation will have upon other localities or upon the fishing industry as a whole.

FISHERIES OF THE GREAT LAKES.

In 1888, a quarter of a century ago, the total reported catch of all varieties of fish caught by commercial fishermen in the waters of Lake Superior, Lake Michigan and Green Bay within Wisconsin boundaries was 8,780,780 pounds, valued at $270,595.00. The 1913 catch amounted to 21,722,000 pounds which sold on the markets for $792,000. This great increase in the catch after 25 years of constant fishing is mainly accounted for in the increase in the catch of lake trout and bluefin, the two species of fish propagated by this commission on a large scale. On the whole this catch of 1913 was the largest ever made in one year in this state. The better enforcement and observement of the state fishing laws also has much to do with the improvement of the commercial fisheries on the Great Lakes.





CONCRETE PONDS AT BAYFIELD HATCHERY.

The fishing reports will not be available until some time after January first. I understand that the 1914 catch will show a decrease, complaints as to the poor returns being especially numerous on the Michigan shores. Unusual heavy currents have been running up and down the lake. These currents are of such strength and in locations the oldest fishermen cannot recall and are of such volume that they carry the nets and buoys great distances. At first I thought this was a condition present only on the Wisconsin side, but I find the same reports coming from the Michigan side as well as from Lake Superior. Unless they are due to weather conditions, no one knows the cause of these strange and frequent currents. Heavy winds will oftentimes cause lake currents, but this summer some of the strongest were present on days of absolute calm.

COMMERCIAL FISHING REPORT FOR 1913.

Fish Caught in Lakes Superior, Michigan and in Green Bay.

	Pounds.	Value.
Whitefish	137,624	$18,744.89
Lake Trout	4,618,821	374,517.48
Bluefin	950,048	29,398.65
Chub	3,123,982	126,253.08
Herring	7,559,441	106,272.56
Pike	203,543	23,774.76
Perch	2,410,185	66,347.40
Rough fish	2,718,417	46,731.62
Total	21,722,061	$792,040.44

This statement shows a decrease of 14,500 pounds in the catch of whitefish and an increase of 539,750 pounds in lake trout and 465,290 pounds in bluefin. There was also an increase in the catch of chub, herring and perch, and a decrease in the catch of pike.

The 1913 catch shows an increase of 4,114,225 in pounds and $139,148.83 in value over the catch of 1912. These statistics are taken from the reports of 588 licensed fishermen. They show the employment of 1,652 men and an investment of $696,635.00 in boats, nets and other equipment.

The decrease in the catch of whitefish was practically entirely in Green Bay waters. In Lake Michigan the whitefish is holding its own. In 1903 the catch in Michigan waters was 78,200 pounds and the 1914 catch 76,175. In 1880, 25 years ago, the catch of this fish in Lake Michigan was 78,450, in 1895 it dropped to 20,325, in 1909 it went up to 50,140 and in 1911 some 88,000 pounds of whitefish were caught.

Twenty-four years ago, during the season of 1890, the commercial fishermen plying their trade on the waters of Lake Superior reported a catch of 478,632 pounds of lake trout. In 1913 the licensed fishermen in Wisconsin waters only, report a lake trout catch of 856,190 pounds;

an increase of almost 100% in the catch of this fish after a quarter of a century of constant fishing.

I herewith give a comparative statement of the catch of lake trout in the waters of Lake Superior and Lake Michigan during the past five years.

	Lake Michigan.	Lake Superior.
1909	4,371,480	427,175
1910	4,336,900	259,720
1911	4,639,500	504,617
1912	3,557,832	521,239
1913	3,761,890	856,189

STEELHEAD TROUT IN LAKE MICHIGAN.

In former reports I made mention of steelhead trout being caught in Lake Michigan. Since that time the increase in the catch of this fish has been so marked that special attention has been called to this species of trout. The steelhead is a member of the salmon family. The term steelhead brings in the name rainbow, for the two have long been considered identical. The general opinion is that they are one species, the name rainbow being applied to the fish prior to their descent from the rivers to the sea. This is a point that I have always maintained: that the steelhead and rainbow are one and the same fish. I am positive that the heavy catches of steelhead trout being made is a direct result of the plantings of rainbow trout we have been making all these years in streams tributary to the Great Lakes. As the fish grow older they instinctively follow the streams down into Lakes Superior and Michigan and when caught in the nets of the commercial fishermen are called "steelhead." It is a well known fact that the coloring of a fish is greatly influenced by the waters inhabited and this accounts for the difference in the color of the rainbow after it leaves the small streams and enters a large body of water.

The state of Wisconsin has distributed more rainbow trout fry than all the other states bordering on the great lakes combined. The rise of the steelhead trout to a place where it has become a valuable adjunct to lake fisheries, has proved again the value of artificial propagation of fish. The fish are mostly caught in pound nets and quite close to the shore. The meat is not as hard and firm as that of the salmon when they return to the rivers from the sea. As to the market value, the fishermen receive the same price per pound for steelhead as they do for the ordinary species of lake trout.

If the so-called "steelhead" caught in the Great Lakes adjacent to Wisconsin shores are not the result of the rainbow trout fry distributed by this commission, the question arises, where did they come from? The steelhead were found in Lake Michigan waters many years before there is any record of planting steelhead fry in the lake. There is a record of the U. S. Bureau of Fisheries planting 180,000 steelhead in Lake Superior in 1895; but this planting is insignificant when compared to the immense tract of water in which the planting was made. I maintain that the great bulk of so-called steelhead trout come from the great plantings of rainbow trout fry made in the headwaters of the Brule river tributary to Lake Superior and in the Peshtigo and Oconto rivers tributary to Green Bay. For years the rainbow trout has been common in most streams flowing into Green Bay and Lake Michigan. They are especially numerous in the spring when they run up stream to spawn. If the steelhead trout of Lakes Superior and Michigan are the genuine steelhead of the Pacific coast, they, according to the few that were planted in Lake Superior, are much more prolific and reach maturity much quicker than any of our native fish.

Last spring we collected one hundred thousand steelhead trout eggs from fish that came up our stream at the Bayfield hatchery. We now have several thousand of the fry which we retain at the hatchery.

THE PEARL MUSSEL INDUSTRY.

"The history of the fresh water mussel industry along the upper Mississippi River illustrates the promptness with which an American industry may be developed and also gives illustration of the promptness with which an American industry will deplete and destroy a natural resource. The threatened extinction of the fresh water mussel in the upper Mississippi and its more important tributaries and the consequent effect upon the pearl button industry, has finally opened the eyes of those directly interested to the fact that steps must be taken to save the mussel from utter extinction. This situation has led the U. S. Bureau of Fisheries to undertake extensive investigations covering the possibilities of artificial propagation and practical means of restocking depleted waters.

Although 20 states participate directly in the mussel fisheries, only 2 or 3 have taken any action for the protection of the resources. Our state collects a nonresident fee of $50 to fish for mussels, which is as far as we have gone in the interests of the pearl mussel in Wisconsin waters.

"But little is known of the process of the natural reproduction of the mussel. They have beds on the river bottom the same as the oyster beds in salt water. There is a great variation in the time and manner of spawning. In some species there is a distinction in the sex. Most of the fresh water mussel however produce, impregnate and hatch the eggs within the shell of the individual. The young are produced perfectly developed. After the parent clam forces the young out of the shell the minute mussel must attach itself to the fin or gills of some fish, otherwise it will perish. They remain on the fish for a period of from 21 to 74 days depending upon the temperature of the water and the variety of fish upon which they attach themselves. This is known as the parasitic stage of the clam. The whole problem of the food of the mussel is as yet untouched.

The results of the work in the matter of maintaining the mussel industry depends almost entirely upon protection, a closed season and the size of shells permitted to be taken. I consider this a matter of great importance and suggest that legislation for the future good of the industry would be wise.

The U. S. Bureau of Fisheries is having made a very thorough survey of the mussel industry. About two-thirds of the entire territory has been covered. The one-third not yet covered includes the upper Mississippi so exact information is not available. We are advised by the Fairport Biological Station that by comparison with other regions already carefully surveyed, that the value of the shell product of the Mississippi river north of the Illinois State line, that portion between Iowa, Minnesota and Wisconsin, was not less than a quarter of a million dollars.

THE CARP QUESTION.

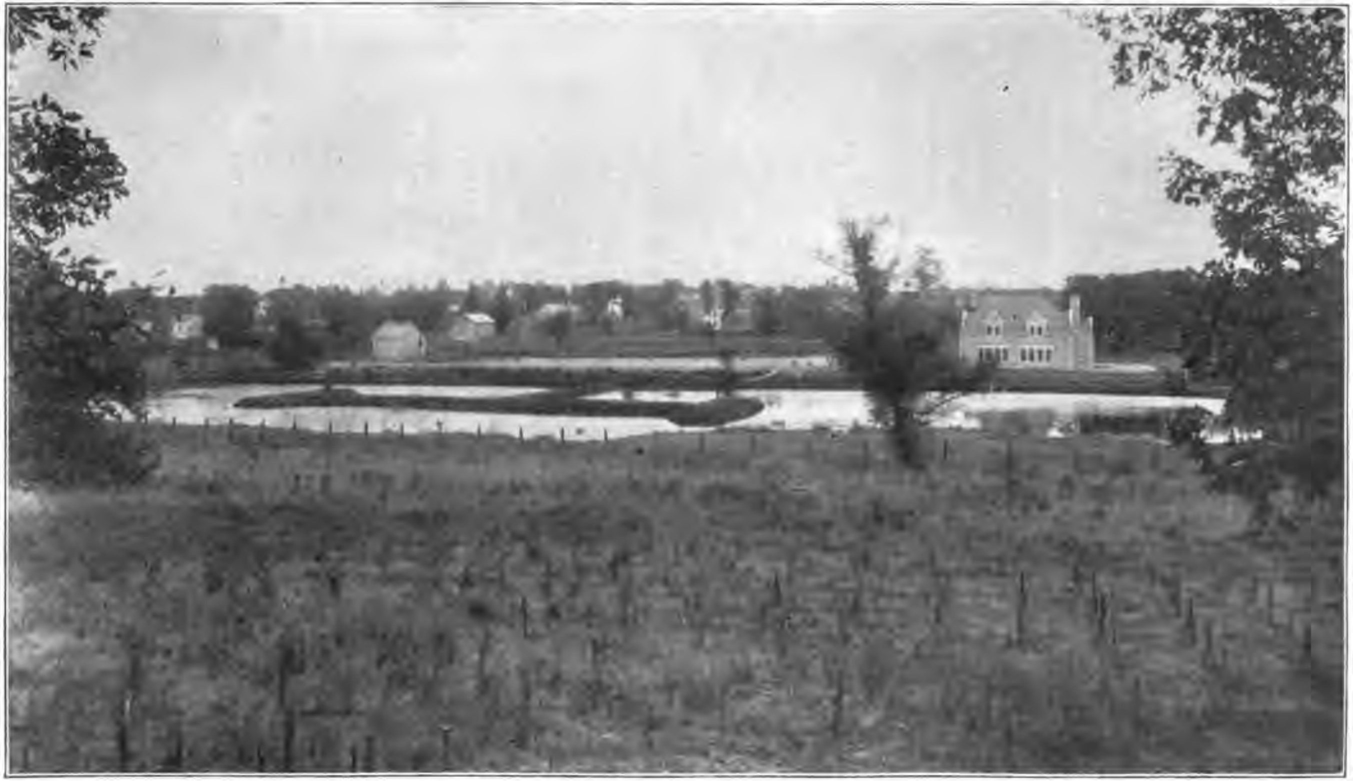
The U. S. Bureau of Fisheries introduced the carp into public waters in 1877. Wisconsin made the first planting of carp in our state in 1881 and discontinued the distribution of the fish in 1895. In 1908 the Federal Bureau reported that 42,763,000 pounds of carp valued at $1,135,000 were caught that year in the waters of Iowa, Ohio, Missouri, Minnesota, Michigan and Wisconsin. In recent years the carp have been enormously plentiful in our waters but no record is available showing the total catch of carp in Wisconsin. Under a new provision of law the State Game Warden Department has been seining the carp out of lakes in which they have become over-plentiful and a nuisance. During the fiscal year ending June 30, 1914, that department marketed 1,340,334 pounds of carp, suckers, buffalo and other rough fish which netted $72,773.80 after all expenses were paid. This work was accomplished during a period of approximately three months duration in the fall and spring months. The value of the catch of carp is outranked only by the salmon, herring, lake trout and whitefish. On the New York market it brings from 3 cts. to 8 cts. per pound, depending upon the season of the year.

While the fish does not rank highly as an edible variety, it is not as dangerous as a destroyer of other fish as anticipated, nor is it as harmful in the destruction of spawn and fry as are many of our game fish. The carp is surely of great value as a food fish. The demand for the fish is increasing, especially in the larger cities, and the prejudice against their use as food is gradually wearing away.

The carp after once being nearly all caught out of a body of water do not multiply as fast in after years as they do when originally planted into the waters. This is probably due to food and other conditions important to the rapid increase of this fish. After the carp have infested a body of water for a period of years, the food supply becomes so greatly exhausted that the increase is much slower.

BLACK BASS PROPAGATION.

In bass culture we cannot improve or excel nature, as far as the actual output of fry is concerned. The percentage of bass eggs hatched under natural conditions is small. Occasionally a nest by a pair of bass averaging four pounds in weight will produce 10,000 fry, but conditions



THE DELAFIELD HATCHERY.

must be exactly right during the propagation period. Many nests are an entire loss and others produce anywhere from 25 to 2,000 young and sometimes as high as 10,000 fry are hatched on one nest. The result depends entirely upon the impregnation of the eggs and weather conditions. Should the temperature drop seven degrees during the time the eggs are on the nests the greater portion of the eggs will die.

The large mouthed bass leave their nests after depositing the spawn. During the hatching period you can follow the shores of a lake or pond and you will find no bass in the shallow waters or near the nests and one would have the impression that the waters contain no black bass. During the ten days following the depositing of eggs on the nests until the fry begin to hatch, the nests become covered with moss, and grass will grow up through the eggs. Appearances impress one that the eggs would smother for want of circulation and that few or no fry would be hatched. At about the time of hatching the mature bass will return to the nests to give protection to the young until they reach the age that they should be able to cope for themselves. The small mouthed bass hover over the nests and protect the eggs and young from the time the eggs are deposited until the young are able to assume the burden of existence.

In my opinion there is hardly a lake in our state in which either the large or small mouthed or both varieties do not exist. I venture to say that an average of several hundred thousand young bass are produced under natural conditions in most Wisconsin lakes each year and in some lakes, such as the Four Lakes region around Madison, the natural reproduction of black bass runs into millions in each of the four lakes. The question is, what becomes of this large number of bass fry that we know are produced in the Wisconsin lakes every year? We all know that "the big fish eat the little fish" and that in fish life it is a question of the survival of the fittest. This undoubtedly is the partial cause of our seeing no particular increase in the supply of black bass in our inland lakes.

The black bass is one of the gamiest of game fish and affords the sportsman great pleasure in catching them. The demand for black bass fry for stocking our waters is greater than that for any other variety.

Better protection during the spawning season is our greatest need regarding the black bass. Of all our game fish they are the most prolific under natural conditions. At present the open season starts just at the time when they are spawning. The open season for the bass should not start before June 20, or better still, July 1. There is no reason why the law should not be amended to prohibit the catching of bass in our lakes before July 1. By that time the great majority of the spawning fish would have laid their eggs and the fish would be given protection just at the time they need it whereas as the law now stands we afford the black bass no protection whatever during its spawning season. If this was done it would be a matter of but a few years when we would experience an increase in the catch of bass.

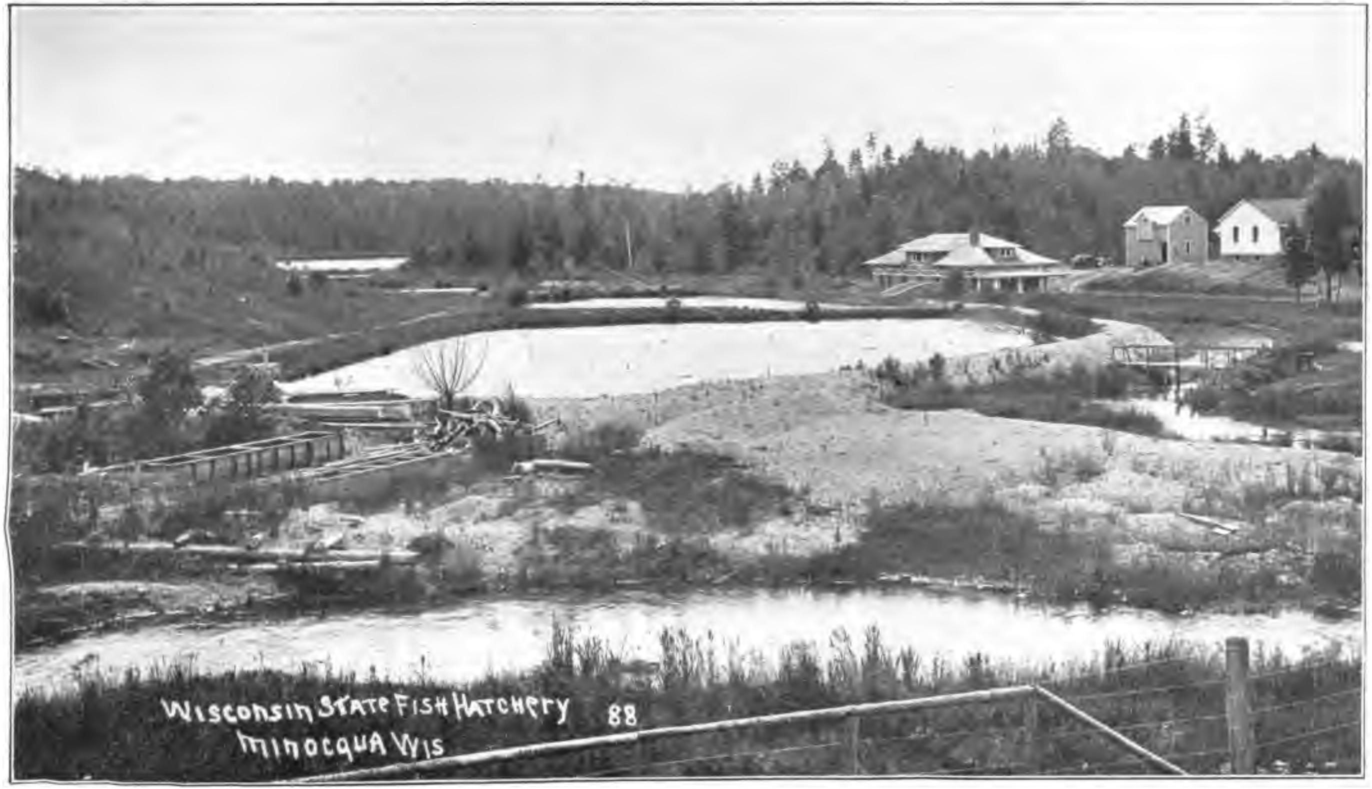
What I say in regard to the natural reproduction of black bass does not apply to the other game and commercial fish in our inland and outlying waters. The bass, bullhead, catfish and dogfish are in a class by themselves in that they build nests and protect the eggs and young fish. They will drive away any other fish that may attempt to interfere with the nests, eggs or fry. Eelpout and suckers are the greatest destroyers of the eggs of other fish. They will follow a spawning female and devour the eggs as fast as they are laid. Fishermen tell me that during the fall of the year wild ducks hover over the spawning grounds on the reefs and feed on the spawn of the lake trout and whitefish.

DISTRIBUTION OF FRY.

The matter of the distribution and transportation of the young fish produced by our nine hatcheries has grown to a task of large proportions and an item of large expense. During the fiscal year ending June 30, 1914, our distribution expense amounted to $8,459.50. In addition to this we built a new side track at Wild Rose at a cost of $792.97 but this being a capital expenditure, it cannot be charged as an actual distribution expense. The enormous increase in our output necessitates a proportionate increase in the cost of mileage, messenger's expenses and draying. At the time we distribute wall-eyed pike fry we send out shipments from the Delafield, Oshkosh, Minocqua and Spooner hatcheries at the same time. For some ten days every daily train connecting with these plants carries from 20 to 50 ten-gallon cans of fry. Some 16,600 loaded cans were required to carry the 247,079,876 young fish planted in Wisconsin waters during our 1914 distribution period.

The demand for fry increases in volume every year. This is easily accounted for in that the results obtained from the planting of fry have for years been so eminently successful that anglers all over the state appreciate the value of stocking the lakes and streams. As our population increases, there is an increase in the number of persons who fish for sport or profit.

Since the advent of the automobile the waters have been fished harder than ever. Sportsmen think nothing of a 30 or 40 mile drive in an auto for a day's fishing. Not many years ago anglers would have to figure on spending several days to fish a stream or lake quite a distance from their homes. Today they can jump into their machines, drive 30 miles out and back, get a good day's fishing and sleep in their own beds again that night. The result is, especially pertaining to trout, that the streams are whipped so thoroughly that the fish really have no opportunity to grow and are caught out faster than they can grow to be of legal size. This is the reason why we hear complaints in some communities that they do not catch as large trout as in former years. The trout, especially the brook trout, are present in many streams in larger numbers than ever but the catch of large brook trout is decreasing every year. This is caused by so much fly fishing, the small trout will rise to a fly much more readily than a large fish. Many of the trout caught on a fly should be allowed to remain in the stream until they have attained a better growth. In almost every instance where we hear of some large trout being caught, we find that the fish was caught on a baited hook.



THE MINOCQUA HATCHERY.

In recent years the public has been more interested in the planting of fry, and in almost every case all care and precaution is taken to make the planting successful. The people have become educated in the matter of handling fry and the young fish are, as a rule, always planted in the best possible condition. There is no such thing as failure if the fry are in prime condition when planted and if the waters in which they are placed afford favorable food conditions.

MISSISSIPPI RIVER WORK.

This season the work of rescuing fish from the sloughs and bayous adjacent to the Mississippi river was unusually successful. Conditions were very favorable and more fish were found in the river bottoms than in any previous year. Heretofore a certain portion of the fish so rescued were shipped to other inland waters but this year all the fish were returned to the main channel of the river. A total of 2,542,800 fish consisting of carp, crappie, catfish, buffalo, bass, bullhead, pickerel, pike, perch and sunfish were taken from the back waters in which they would eventually perish, and were placed back into the main channel of the river.

LAKE TROUT WORK.

The collection of lake trout eggs is carried out during the month of October on Lake Superior and during November on Lake Michigan. The law provides but a 15 day closed season on Superior waters, from October 1 to 15 inclusive. This is entirely too short a period, it not only handicaps us in the collection of the spawn but increases the cost in that during the first 15 days the fishermen must pay the services and expenses of a spawn-taker but after the 15th, the State must pay this item. The closed season on Lake Superior should be put back where it was, during the entire month of October, and placed on the same basis as Lake Michigan on which the closed season covers the entire month of November. This is an instance where the laws were changed by interests wholly self-centered and without a thought or consideration of what the effect may be on the fishing industry.

Statistics on this work are interesting. Last year 18 permits were issued on Lake Superior to catch lake trout for spawn during the 15 days closed season in October. The 18 boats made 162 lifts of the nets, caught 85,857 pounds of lake trout which produced 1,192 quarts of eggs —8,400,000 in number. An average of 710 pounds of fish were caught at each lift and it required an average of 72 pounds of fish to produce one quart of eggs. In 1911 the last eggs were taken on November 1, in 1912 on October 27, and in 1913 on October 24. Thus it can be readily seen that the closed season on Lake Superior should be until October 31, instead of October 15.

On Lake Michigan 78 permits were issued, 391,385 pounds of lake trout were caught and 5,700 quarts of eggs collected. Some 443 lifts of the nets were made, an average of 862 pounds of fish caught per lift and one quart of eggs produced for every 68 pounds of fish.

CONDITIONS ON LAKE WINNEBAGO AND THE FOX RIVER.

Every year large numbers of small fish in the fry stage as they follow the current from Lake Winnebago to the Fox river are carried by the strong flow through the water wheels and sluice-ways of the dam at Neenah into the Fox river. As these fish grow older they again work back against the stream towards Lake Winnebago but encounter the Neenah dam and their progress is halted. This season our men collected 65,300 fingerling white bass and perch at the foot of the dam. These fish were delivered to different inland lakes. Some 150,000 of these fish were also carried to points above the dam and placed in Lake Winnebago.

Millions of young fish are carried from Lake Winnebago down the Fox river and into Green Bay every year. Two-thirds of these fish are perch. Hundreds of tons of them measuring six inches and over are caught with hoop and pound nets in Green Bay every year. Over two million pounds of perch were caught in the vicinity of the city of Green Bay last year. In 1913 the value of the perch caught out of Green Bay was $47,452.30. The present law allows the catching of perch as small as seven inches, the minimum size should be ten inches. It is a shame to allow the marketing of tons and tons of these undersize perch, which, if they were allowed to attain a growth, say of one-half pound, the value of the 1913 catch would have been some $250,000 instead of a little over $47,000. To allow these fish to remain in the waters until they gain this additional weight would be of no expense to the fishermen. Then instead of getting one and two cents per pound the fishermen would be paid from four to six cents per pound for perch averaging a half pound in weight.

ROD AND GUN CLUBS.

The organization and maintenance of rod and gun clubs throughout the state has accomplished a world of good in the interest of fish and game life. These organizations promulgate a personal interest in the preservation of wild life. As pertaining to the Department of Fisheries the clubs serve as a source of education in the planting and protecting of fry. The members co-operate with us in the planting of fry and take a keen interest to see that all fish received are put in the waters in the best possible condition and in places where the best results may be obtained.

There is but one feature in connection with rod and gun clubs that may be criticised. They oftentimes ask and expect too much from us in the allotment of fry. This however is not caused by selfishness but by the great interest they have in the work. Our allotments of fry are made only after an exhaustive study and are prorated for all portions of the state before shipments begin. The shipments are based upon the plantings made during the two previous years, the character and extent of waters to be stocked, the number of applications on file and the amount of fry available for distribution. When all these various items are considered the allotments made cannot be otherwise but fair and just to all portions of the state.

MADISON HATCHERY.

The last biennial period has seen many and important changes at this, the first hatchery established by Wisconsin. Almost all of the old wood construction in the raceways and ponds has been replaced with concrete, as have the walks and the floors in the buildings. All this work is of a permanent nature and I venture to say that it will stand the wear of time for an indefinite number of years. It was our intention to place a new roof on the main building during the summer of 1914, but the funds available would not permit this expenditure.

Following plans by a Chicago firm of landscape architects, the beautification of the premises was started, with a new drive through the grounds and four appropriate brick posts at the main entrances. This work will be followed as our fund permits and eventually we expect to complete the ideas of the architects.

The Madison hatchery continues to show splendid results and on an increasing scale every year. During the past two seasons this station sent out 3,777,000 brook and 4,152,000 rainbow trout fry. On June 30, 1914, the ponds contained 50,000 fry and yearling and 20,800 trout two years old and over.

BAYFIELD HATCHERY.

With the exception of repairing the wall under the main building and repairing the Red Dam, no particular work of improvement was done at Bayfield. Changes were made in some of the ponds to improve the circulation of water and consequently greatly benefited the fish. Minor improvements are made every year to increase the efficiency of the plant and to enhance the appearance of the grounds. The Bayfield hatchery is certainly a beautiful spot during the summer months.

This station produced 23,262,000 fry of brook, brown, rainbow, lake trout and bluefin. The complete classification of the output will be found on another page of this report. On June 30 we were feeding 260,000 fry and yearling and 37,180 mature fish at this hatchery.

OSHKOSH HATCHERY.

Since our last report this hatchery was moved from the old location to a site near the lake front and close to the city water plant. We also added new equipment and a new pipe line. During the summer of 1914 Commissioner Osborn had charge of improving the ground so that it would be in a more presentable condition. This hatchery is now used exclusively for the propagation of pike eggs and is operated the same as the new sub-station at Spooner; only for about 20 days during the month of May.

MINOCQUA HATCHERY.

No work of enlargement or improvement was carried out at this hatchery during the years of 1913–1914. The buildings, grounds and ponds have been kept in good condition. The bass distribution from this station was in some respects disappointing, but I find that our hatcheries at Minocqua and Delafield show a very favorable comparison with other state and federal bass hatcheries. Minocqua's output will be found in the classified statement of distribution.

During the fall of 1914 some 235 mature black bass weighing three pounds and over were placed in Little Bass lake for 1915 breeding purposes.

DELAFIELD HATCHERY.

My report for this station is practically the same as that on the Minocqua hatchery. No money was expended except for the general upkeep of the plant. By examining the table of distribution you will find that the results at our two bass hatcheries are about on a par.

WILD ROSE HATCHERY.

This station has made a wonderful advancement during the past biennial term, not only in the output and the number of breeding fish on hand, but also in the general physical condition of the fish and in land and land improvements. The initial work of beautifying the grounds according to the plans of landscape architects O. C. Simonds & Co. of Chicago is well under way. Three of the fry ponds were rebuilt and the drive from the main entrance to the building has been put in excellent condition. Seven new ponds were added to this station during 1914. Many needed improvements were made for the betterment of the fish in the ponds.

The gill trouble we experienced, especially among the older fish, is greatly reduced and we anticipate that in time the trouble will wear itself out. We also erected a new fry house for holding the young fish prior to shipment.

During the season of 1911–1912 we shipped 3,274,000 trout from Wild Rose as compared with 5,778,000 in 1913–1914, not counting some three million eyed brook trout eggs transferred to the Bayfield and Madison hatcheries. On June 30, 1914, the ponds at Wild Rose contained 143,000 yearling and fry and 18,137 mature trout.

STURGEON BAY AND SHEBOYGAN HATCHERIES.

These two lake trout hatcheries are doing most commendable work in the planting of lake trout, whitefish and bluefin. Both hatcheries have been completed in every detail as to buildings, equipment, and improving the sites upon which they stand. These hatcheries, situated as they are on the shore of Lake Michigan, meet a long felt want towards supplying millions of lake trout fry to maintain the commercial fishing industry of Lake Michigan and Green Bay. Each year we experience an ever increasing demand upon the resources of these two great bodies of water. The miles of nets, number of boats and men

SCENES AT WILD ROSE HATCHERY.

engaged in the fishing industry multiply every year, and were it not for the planting of millions of artificially propagated fry every year, the supply of lake trout would have been depleted years ago.

These plants turned out 21,952,800 lake trout and bluefin during the season of 1913, all of which were planted in Green Bay and Michigan waters. The fry were planted out of the ports of Sturgeon Bay, Algoma, Kewaunee, Sheboygan, Port Washington, Milwaukee and Racine.

SPOONER HATCHERY.

This substation was completed during the fall of 1913 and was operated during the spring of 1914, when it turned out some 36 million pike fry. These eggs were taken from Tomahawk Lake near the Minocqua hatchery where they were packed and shipped to Spooner.

I am much pleased at the results obtained from this little plant. The capital investment and the cost of operation is at a decided minimum compared to the output. Another important fact connnected with the operation of the plant is the matter of shipping. The entire northwest portion of the state is readily reached from Spooner, some ten trains leaving daily. In many instances it is a matter of but a few hours between the time that the fry leave the hatchery and are planted in the lakes by the receiving applicants.

The hatchery completed—i. e., the site, building and equipment, cost us $1,929.14. The anticipated cost was $2,000. The cost of operation to turn out the 36 million fry was $437.86.

The foremen in charge of our several hatcheries are experts in the business and cannot be excelled in the daily performance of their duties. All are leaders and do not request the men under their authority to do any work that they, the foremen, themselves would not do. This condition naturally creates a good feeling among the men. During the summer months much work is done in repairing buildings and ponds. This work is executed by our own employes and I am sure that no contractor gets more work out of his men than our employes willingly render the foreman at whose hatchery they are stationed. There are no laggards on the force and I am proud of each and every one of our employes.

The work of the Commission is continually on the increase in the care and distribution of fish and the responsibilities demand a faithful performance of the work. Some of our men are on the road for six weeks at a time caring for fish, never getting home during that period, but work continually night or day looking after the welfare of the department in carrying out the work entrusted to their care.

Although it is permissible that all state employees be granted a vacation every year, this has not been customary in our department. With one or two exceptions where a two weeks' vacation was allowed, our men have never made requests for vacations.

Respectfully submitted,

JAMES NEVIN,
Superintendent.

TROUT PROPAGATION AT MADISON, BAYFIELD, AND WILD ROSE HATCHERIES.

MADISON HATCHERY.

	Males handled.	Females handled.
Brook trout	4,220	4,300
Rainbow trout	4,000	3,200
	8,220	7,500
Eggs secured		4,966,000

FISH IN PONDS. (June 30, 1914)

	Fry and yearlings.	Two years old and over.
Brook trout	34,000	5,800
Rainbow trout	16,000	15,000
	50,000*	20,800

BAYFIELD HATCHERY.

	Males handled.	Females handled.
Brook trout	3,694	6,048
Brown trout	98	271
Rainbow trout	2,059	1,590
	5,851	7,909
Eggs secured		5,576,450

FISH IN PONDS. (June 30, 1914)

	Fry and yearling.	Two years old and over.
Brook trout	85,000	20,812
Brown trout	16,000	407
Rainbow trout	160,000	15,963
	261,000*	37,182

WILD ROSE HATCHERY.

	Males handled.	Females handled.
Brook trout	5,432	6,080
Brown trout	6	8
Rainbow trout	1,969	2,011
	7,407	8,099
Eggs secured		6,927,250

FISH IN PONDS. (June 30, 1914)

	Fry and yearling.	Two years old and over.
Brook trout	57,600	11,683
Brown trout	5,000	14
Rainbow trout	73,500	6,440
	136,100*	18,173

Total males handled at the three hatcheries	21,478
Total females handled at the three hatcheries	23,558
Total number of fish handled	45,036

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* Estimated.

Total number of eggs secured	17,469,700
Average number of eggs taken per female at Madison	660
Average number of eggs taken per female at Bayfield	700
Average number of eggs taken per female at Wild Rose	850
Average number of eggs per female at the three hatcheries	740

Total number of Brook Trout fry and yearling on hand	*176,600
Total number of Brown Trout fry and yearling on hand	21,000
Total number of Rainbow Trout fry and yearling on hand	249,500
Total number of Brook Trout two years old and over	38,295
Total number of Brown Trout two years old and over	421
Total number of Rainbow Trout two years old and over	37,403
Total number of trout (all ages) in ponds June 30, 1914	523,219

PROPERTY VALUES.

Madison Hatchery—	
63 acres of land, buildings, ponds and other improvements	$30,000 00
Inventory of equipment	3,000 00
Bayfield Hatchery—	
502 acres of land, buildings, ponds and other improvements	41,500 00
Inventory of equipment	4,000 00
Oshkosh Hatchery—	
City lot and building	2,500 00
Inventory of equipment	1,560 00
Minocqua Hatchery—	
275½ acres, buildings, ponds and other improvements thereon	24,250 00
Inventory of equipment	2,240 00
Delafield Hatchery—	
30 acres of land, buildings, ponds and other improvements thereon	26,500 00
Inventory of equipment	1,000 00
Wild Rose Hatchery—	
59½ acres of land, buildings, ponds and other improvements thereon	25,050 00
Inventory of equipment	950 00
Sturgeon Bay Hatchery—	
City lot 120 ft. by 200 ft., and buildings	10,000 00
Equipment	1,000 00
Sheboygan Hatchery—	
City lot 100 ft. by 150 ft., and buildings	10,000 00
Equipment	1,000 00
Spooner Hatchery—	
City lot and building	1,200 00
Equipment	750 00
Fish car "Badger No. 2"	13,500 00
Total value	$200,000 00

Real estate holdings......................900 acres of land and four city lots.

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*Estimated.

FINANCIAL STATEMENT

(July 1, 1912, to June 30, 1913).

RECEIPTS.

July 1, 1912.	Balance on hand	$4,989 08
	Annual appropriation	60,000 00
	Special appropriation for repairs	2,500 00
Sept. 24, 1912.	Sale of horse	60 00
Dec. 31, 1912.	Sale of down timber	20 00
March 1, 1913.	Sale of horse	155 00
		$67,724 08

DETAILS OF DISBURSEMENTS.

June 30, 1913.

James Nevin, Supt., salary one year	$2,500 00
James Nevin, Supt., expenses one year	588 01
R. S. Scheibel, part salary	1,000 00
John Abbink, part salary	400 00
Matt Patterson, salary	1,130 00
	$5,618 01

MADISON HATCHERY.

A. W. Gallagher, salary	$1,125 00
Benjamin Durkee, part salary	140 00
F. E. Meade, part salary	450 00
Valentine Maag, salary	720 00
B. F. Holtman, salary	720 00
Sundry labor	82 00
Improvements and repairs	827 56
Supplies	480 39
Equipment	311 00
Fish food	996 91
Barn expense	178 97
Trout eggs purchased	296 50
Telephone	66 55
	$6,394 88

BAYFIELD HATCHERY.

R. L. Ripple, salary	$1,500 00
John Hagberg, salary	720 00
Fred Wahlquist, salary	660 00
Andrew Wahlquist, salary	550 00
Sundry labor	670 67
Improvements and repairs	39 50
Supplies	522 48
Equipment	123 05
Fish food	739 67
Barn expense	169 28
Telephone	29 94
	$5,724 59

OSHKOSH HATCHERY.

John Maag, salary	$300 00
F. E. Meade, salary	60 00
James Foy, salary	60 00
Sundry labor	232 10
Supplies	216 45
Improvements and equipment	1,130 48
	$1,999 03

MINOCQUA HATCHERY.

F. E. Hewitt, salary	$840 00
Sundry labor	593 55
Supplies	274 66
Equipment	184 44
Barn expense	75 81
	$1,968 46

DELAFIELD HATCHERY.

B. O. Webster, salary	$1,425 00
Sundry labor	729 90
Collecting bass breeders	64 75
Supplies	139 59
Telephone	14 80
	$2,374 04

WILD ROSE HATCHERY.

P. G. Zalsman, salary	$1,200 00
F. C. Ramsdale, salary	720 00
Sundry labor	1,043 13
Improvements and repairs	1,264 02
Supplies	436 14
Equipment	34 75
Fish food	1,035 25
	$5,733 29

RESCUING FISH FROM BACKWATERS OF THE MISSISSIPPI RIVER.

STURGEON BAY HATCHERY.

Benj. Durkee, part salary...	$710	00
T. J. McCafferty, part salary	300	00
Sundry labor	292	79
Improvements	2,702	85
Equipment	1,536	53
Supplies	692	31
Telephone	17	20
	$6,251	68

SHEBOYGAN HATCHERY.

John Maag, part salary.....	$900	00
James Foy, part salary.....	420	00
Sundry labor	297	98
Improvements	4,334	40
Equipment	336	55
Supplies	761	48
Telephone	11	55
	$7,061	96

TRANSPORTATION AND DISTRIBUTION.

Salaries and sundry labor...	$891	37
Mileage	2,040	00
Supplies	498	42
Employes' expenses	2,166	63
Telephone and telegraph....	233	73
Freight, dray and express...	1,255	62
New fish car and equipment..	13,782	01
	$20,867	78

SUNDRY ACCOUNTS.

Research work	$292	40
State fair exhibit...........	84	80
Collecting lake trout and pike eggs	2,758	02
State insurance	528	64
Miscellaneous	66	50
	$3,730	36

RECAPITULATION.

Superintendent and office force....................................	$5,618	01
Madison hatchery	6,394	88
Bayfield hatchery	5,724	59
Oshkosh hatchery	1,999	03
Minocqua hatchery	1,968	46
Delafield hatchery	2,374	04
Wild Rose hatchery	5,733	29
Sturgeon Bay hatchery..	6,251	68
Sheboygan hatchery..	7,061	96
Transportation and distribution..................................	20,867	78
Sundry accounts	3,730	36
Total	$67,724	08

NEW LAKE TROUT HATCHERIES.

	Receipts.	Disbursem'ts.
Appropriation, Chapter 527, Laws of 1911...........	$10,000 00	
August 30, 1912, Boyd Construction Co.. on contract..		$1,573 65
Sept. 30, 1912, Boyd Construction Co., on contract...		5,000 00
Nov. 29, 1912, Boyd Construction Co., on account....		3,426 35
	$10,000 00	$10,000 00

FINANCIAL STATEMENT.

(July 1, 1913, to June 30, 1914).

	Receipts.	Disbursem'ts.
Appropriation, (operation)	$48,500 00	
Appropriation, (maintenance and repairs)	5,800 00	
Appropriation, (land and improvements)	7,080 00	
Overdraft, operation account	764 17	
Overdraft, maintenance and repairs account	490 27	
Operation expense		$49,264 17
Maintenance and repairs expense		6,290 27
Land and improvements expense		7,080 00
Total	$62,634 44	$62,634 44

DETAIL OF DISBURSEMENTS.

James Nevin, Supt., salary	$2,500 00
James Nevin, Supt., expenses	470 98
John Abbink, salary 4½ months	450 00
Matt. Patterson, salary 11 months	1,225 00
R. S. Scheibel, sal. 7 months	1,012 50
Printing, postage, stationery	817 63
State insurance	707 46
	$7,183 57

MADISON HATCHERY.

A. W. Gallagher, salary	$1,325 00
Valentine Maag, salary	720 00
F. E. Meade, salary 7 months	535 00
B. F. Holtman, salary 4 months	240 00
T. J. McCafferty, salary 6 months	380 00
Sundry labor	910 75
Supplies	448 49
Equipment	815 24
Improvements	2,601 06
Barn expense	297 63
Telephone	42 50
Fish food	1,293 95
	$9,609 62

BAYFIELD HATCHERY.

R. L. Ripple, salary	$1,500 00
John Hagberg, salary	840 00
Steve Thompson, salary 10 months	565 00
John Stensvad, salary 7 months	409 00
Sundry labor	1,156 75
Supplies	675 25
Equipment	356 40
Fish food	929 69
Improvements	434 56
Barn expense	173 89
Telephone	40 89
	$7,081 43

OSHKOSH HATCHERY.

F. E. Meade, salary 2 months	$160 00
Sundry labor	46 00
Supplies	260 22
Equipment	598 98
Improvements	693 48
Telephone	42 58
	$1,801 26

MINOCQUA HATCHERY.

F. E. Hewitt, salary	$840 00
Sundry labor	792 46
Supplies	627 78
Improvements	122 85
Equipment	207 15
Barn expense	55 66
Collecting bass breeders	96 00
Telephone	123 90
	$2,865 80

DELAFIELD HATCHERY.

B. O. Webster, salary 10 months	$1,160 00
Sundry labor	937 35
Supplies	134 37
Improvements	52 91
Telephone	47 00
	$2,331 63

WILD ROSE HATCHERY.

P. G. Zalsman, salary 1 month, 6 days	$124 00
F. C. Ramsdale, salary 10 months	600 00
Benjamin Durkee, salary	900 00
Sundry labor	1,546 80
Improvements	1,032 26
Fish food	1,066 79
Supplies	516 60
Telephone	38 30
	$5,824 75

STURGEON BAY HATCHERY.

Benj. Durkee, salary 2 months	$160 00
Frank Suthers, salary 10 months	800 00
Frank Purcell, salary 5 months	305 00
Sundry labor	822 68
Supplies	419 21
Improvements	1,481 73
Equipment	22 25
Water rent	549 96
Telephone	35 15
	$4,595 98

SHEBOYGAN HATCHERY.

John Maag, salary	$1,200 00
James Foy, salary 6 months	360 00
Sundry labor	771 50
Improvements	1,270 61
Supplies	353 50
Equipment	106 91
Water rent	1,433 97
Telephone	37 20
	$5,533 69

SPOONER HATCHERY.

T. J. McCafferty, salary 2 months	$145 00
Sundry labor	255 92
Land	150 00
Building and equipment	1,779 14
	$2,330 06

DISTRIBUTION AND TRANSPORTATION.

Mileage	$1,960 00
Employes' expenses	3,307 71
Freight, dray and express	1,898 10
Salaries	632 00
Sundry labor	206 50
Supplies	351 35
Car maintenance	103 84
New side track at Wild Rose	792 97
	$9,252 47

SUNDRY ACCOUNTS.

Collecting pike eggs	$2,490 78
Collecting lake trout eggs	1,218 77
Collecting whitefish eggs	248 19
Collecting white bass fry	69 02
State Fair exhibit	113 49
Research work	64 03
Miscellaneous	19 90
	$4,224 18

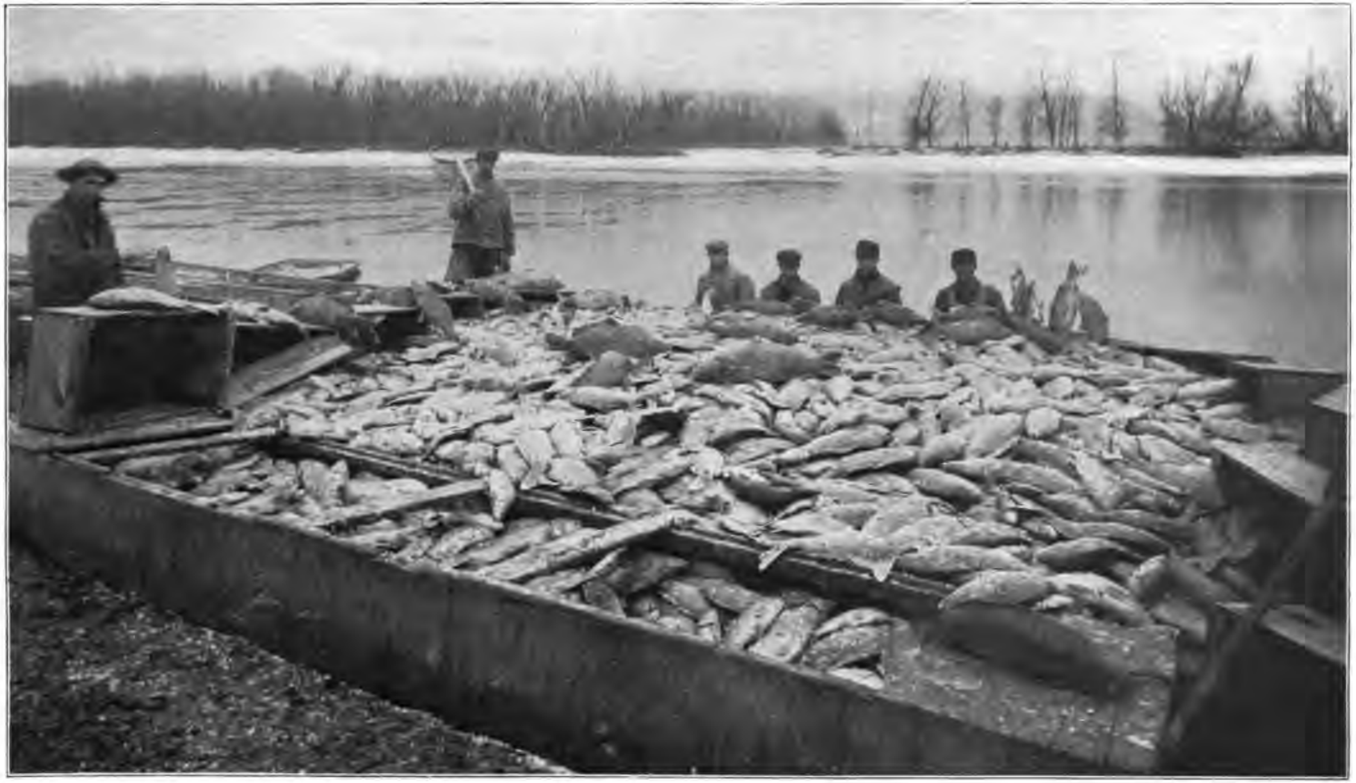
RECAPITULATION.

Superintendent and office expenses	$7,183 57
Madison hatchery	9,609 62
Bayfield hatchery	7,081 48
Oshkosh hatchery	1,801 26
Minocqua hatchery	2,865 80
Delafield hatchery	2,331 63
Will Rose hatchery	5,824 75
Sturgeon Bay hatchery	4,595 98
Sheboygan hatchery	5,533 69
Spooner hatchery	2,330 06
Distribution and transportation	9,252 47
Sundry accounts	4,224 18
Total for year	$62,634 44

	1913.	1914.
Expense on Mississippi river	$1,497 91	$2,188 02

DISTRIBUTION OF FISH, BY COUNTIES, 1913.

	Brook trout advanced fry.	Rainbow trout advanced fry.	Wall-eyed pike fry.	Black bass fry.	Black bass fingerling.
Adams	48,000	6,000		4,000	
Ashland	108,000	51,000	1,720,000	4,000	
Barron	224,000	132,000	5,200,000	68,000	1,000
Bayfield	759,000	440,500		64,000	
Brown	78,000		180,000		
Buffalo	32,000				
Burnett	86,000	24,000			
Calumet			160,000		8,000
Chippewa	98,000	88,500	1,330,000		6,000
Clark	68,000	4,500	660,000		
Columbia	60,000	45,000	800,000		12,000
Crawford	94,000	42,000			
Dane	56,000	60,000	4,680,000	186,000	11,000
Dodge	30,000	9,000	1,040,000		35,000
Door	6,000		270,000		10,000
Douglas	172,000	94,500	1,800,000	20,000	
Dunn	128,000	61,500	1,380,000		10,000
Eau Claire	140,000	27,000	1,120,000		
Florence	64,000	51,000	660,000		
Fond du Lac	70,000	136,500	1,080,000		19,000
Forest	88,000	43,500	1,760,000		
Grant	100,000	64,500	280,000		
Green	58,000	30,000	240,000		
Green Lake	6,000		560,000		5,000
Iowa	90,000	31,500	90,000		
Iron	60,000	22,500	1,400,000	20,000	
Jackson	132,000	39,000	630,000		
Jefferson	6,000		1,680,000	12,000	25,000
Juneau	110,000	60,000	1,260,000	16,000	4,000
Kenosha			1,310,000		24,000
Kewaunee	44,000	9,000	360,000		14,000
La Crosse	134,000	42,000	1,080,000		10,000
Lafayette	28,000				
Langlade	38,000	21,000	800,000	70,000	
Lincoln	96,000	43,500	2,200,000	48,000	
Manitowoc	36,000	54,000	1,120,000		20,000
Marathon	150,000	39,000	1,480,000	24,000	
Marinette	168,000	310,500	1,360,000		18,000
Marquette	68,000	31,500	280,000		3,000
Milwaukee					
Monroe	220,000	42,000	240,000		
Oconto	102,000	27,000	1,500,000		
Oneida	64,000	61,500	16,100,000		5,000
Outagamie	8,000			206,000	
Ozaukee		9,000	80,000		4,000
Pepin	32,000	9,000			
Pierce	190,000	112,500			
Polk	50,000	54,000	200,000	24,000	
Portage	92,000	45,000	1,110,000		
Price	124,000	88,500	1,890,000		
Racine	8,000	6,000	720,000		18,000
Richland	64,000	22,500	160,000		
Rock	20,000	6,000	1,080,000	20,000	14,000
Rusk	86,000	52,500	120,000	16,000	
St. Croix	86,000	69,000	1,060,000	8,000	
Sauk	54,000	15,000	1,720,000		30,000
Sawyer	48,000	57,000	540,000	4,000	12,000
Shawano	228,000	118,500	1,000,000	36,000	13,000
Sheboygan	18,000	9,000	1,580,000		
Taylor	36,000	42,000	1,260,000		
Trempealeau	182,000	57,000	600,000		
Vernon	184,000	36,000			
Vilas	112,000	112,500	4,150,000	126,000	
Walworth	82,000	42,000	3,810,000	28,000	49,000
Washburn	88,000	54,000	3,420,000	100,000	10,000
Washington	20,000	9,000	1,690,000		33,000
Waukesha	76,000	27,000	11,670,000	12,000	111,925
Waupaca	142,000	87,000	1,340,000	4,000	
Waushara	404,000	640,500	1,240,000	20,000	10,000
Winnebago			16,650,000	40,000	
Wood	90,000	64,500	1,290,000	32,000	
	6,543,000	4,090,000	115,690,000	1,212,000	544,925



PART OF A CATCH OF 55,000 POUNDS OF CARP, FROM MISSISSIPPI RIVER, BAY CITY, WIS.

RECAPITULATION OF FISH DISTRIBUTED, 1913.

Brook trout, advanced fry	6,543,000
Rainbow trout, advanced fry	4,090,000
Rainbow trout yearling	15,625
Lake trout fry	21,925,300
Lake trout, impregnated eggs	4,680,000
Whitefish fry	5,000,000
Bluefin fry	28,000,000
Wall-eyed pike fry	115,690,000
Wall-eyed pike, cleaned up eggs	42,790,000
Black bass fry	1,212,000
Black bass fingerling	544,925
Pickerel fry	2,300,000
Pickerel fingerling	12,375
Muskellunge fry	100,000
Bullhead fingerling	23,000
White bass fingerling	58,500
Miscellaneous	1,179,390
	234,164,115

SUMMARY OF OUTPUT OF HATCHERIES, 1913.

Madison Hatchery:	
Brook trout, advanced fry	2,160,000
Rainbow trout, advanced fry	2,292,000
Furnished fairs and aquariums	523
Rainbow trout yearlings	9,625
Mature rainbow trout	936
Miscellaneous	75,000
	4,538,084

Bayfield Hatchery:	
Brook trout, advanced fry	3,241,000
Rainbow trout, advanced fry	1,093,000
Rainbow trout yearlings	6,000
Lake trout fry	4,972,500
Bluefin fry	28,000,000
Brook trout, advanced fry transferred to Madison and Wild Rose hatcheries	75,000
Furnished fairs and aquariums	240
	37,387,740

Oshkosh Hatchery:	
Wall-eyed pike fry	35,040,000

Minocqua Hatchery:	
Wall-eyed pike fry	41,850,000
Wall-eyed pike, cleaned up eggs	42,790,000
Black bass fry	1,212,000
Black bass fingerling	5,000
Pickerel fry	2,300,000
Muskellunge fry	100,000
	88,257,000

Delafield Hatchery:	
Wall-eyed pike fry	38,800,000
Black bass fingerling	517,425
Black bass, various sizes	687
Black bass, furnished fairs and aquariums	550
	39,318,662

Wild Rose Hatchery:	
*Brook trout, advanced fry	1,142,000
Rainbow trout, advanced fry	705,000
Brook trout, various sizes	100
Rainbow trout, two and three years old	525
	1,847,625

Sturgeon Bay Hatchery:	
Lake trout fry	6,252,800

Sheboygan Hatchery:	
Lake trout fry	10,700,000
White fish fry	5,000,000
	15,700,000

Mississippi River:	
Black bass fingerlings, distributed	22,500
Bullheads, fingerlings, distributed	23,000
Fish of all kinds planted back in main channel of Mississippi river	1,014,221
	1,059,721

Neenah Below Dam:	
White bass fingerling, distributed	58,500
Black bass fingerling, planted above dam	780
Perch fingerling, planted above dam	10,000
	69,280

Wolf River at Gill's Landing:	
Pickerel fingerlings	12,375
State Fair exhibit	828
Lake trout eggs, impregnated and planted back on spawning grounds	4,680,000
	4,693,203
Total	234,164,115

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* 1,000,000 eyed brook trout eggs sent to Bayfield.

* 675,000 eyed brook trout eggs sent to Madison.

DISTRIBUTION OF FISH BY COUNTIES, 1914.

	Brook trout advanced fry.	Rainbow trout advanced fry.	Wall-eyed pike fry.	Black bass fry.	Black bass advanced fry.
Adams	14,400	10,500			
Ashland	230,400	108,000	1,324,000	16,000	2,000
Barron	268,200	222,000	5,851,000	8,000	
Bayfield	505,800	94,000	4,385,000	28,000	
Brown	50,400	7,500			
Buffalo					
Burnett	25,200	21,000	1,476,000		
Calumet	12,600		520,000		6,000
Chippewa	108,000	70,500	903,000		
Clark	43,200	22,500	410,000		
Columbia	96,000	73,500			16,000
Crawford	78,000	19,500			
Dane	78,000	91,500	7,360,000		75,000
Dodge			1,545,000		15,000
Door	14,400		235,000		
Douglas	329,400	228,000	4,023,000	64,000	
Dunn	129,600	63,000	1,725,000		6,000
Eau Claire	77,400	45,000	984,000		8,000
Florence	60,600	25,500	2,496,000		
Fond du Lac	56,000	31,500	2,453,000		16,000
Forest	82,400	51,500	1,421,000		
Grant	193,200	78,000			
Green	87,000	46,500			6,000
Green Lake	18,800		416,000		6,000
Iowa	117,000	42,000	312,000		8,000
Iron	106,200	20,000	2,508,000	56,000	
Jackson	190,800	79,500	786,000		10,000
Jefferson	6,000	27,000	2,758,000		13,000
Juneau	127,000	21,000			12,000
Kenosha		7,500	2,936,000		25,000
Kewaunee	39,600	30,000	564,000		
La Crosse	154,800	30,000	1,248,000	20,000	
Lafayette	36,000	4,500			6,000
Langlade	64,800	16,500	1,368,000	32,000	
Lincoln	111,000	54,000	1,520,000	24,000	
Manitowoc	103,200	55,500	1,408,000		4,000
Marathon	133,000	132,000	2,468,000		
Marinette	211,800	348,000	5,076,000		20,000
Marquette	84,000	27,000			18,000
Milwaukee		6,000	156,000		4,000
Monroe	141,000	90,000	260,000		3,000
Oconto	76,000	58,500	1,504,000		
Oneida	124,200	96,000	11,704,000	134,000	
Outagamie	6,000				
Ozaukee					
Pepin					
Pierce	118,800	120,000			
Polk	10,800	52,000	1,540,000		
Portage	118,800	139,500	2,314,000		6,000
Price	100,800	73,500	2,115,000		24,000
Racine	45,000	21,000	1,396,000		20,000
Richland	66,000	90,000	416,000		6,000
Rock	9,000	7,500	2,692,000		33,000
Rusk	144,000	216,000	1,472,000		
St. Croix	131,400	103,000	1,922,000	12,000	6,000
Sauk	59,400	28,500	1,392,000		37,000
Sawyer	102,600	66,000	3,757,000	16,000	
Shawano	207,200	196,500	3,070,000	16,000	
Sheboygan	31,800	10,500	738,000		13,000
Taylor	10,800	15,000	658,000		16,000
Trempealeau	95,400	84,000	752,000		
Vernon	110,400	82,000			4,000
Vilas	73,800	97,500	9,196,000	256,000	
Walworth	126,000	42,000	4,254,000		45,000
Washburn	126,000	70,000	8,956,000	68,000	
Washington	9,000	28,500	1,927,000		26,000
Waukesha	93,000	51,000	8,795,000		102,000
Waupaca	122,000	94,500	1,526,000		10,000
Waushara	372,000	971,000	564,000		20,000
Winnebago			13,950,000		
Wood	154,000	91,500	1,834,000	12,000	
	6,830,600	5,206,500	149,797,000	762,000	647,000

RECAPITULATION OF FISH DISTRIBUTED, 1914.

Brook trout, advanced fry	6,830,600
Rainbow trout, advanced fry	5,206,500
Rainbow trout fingerling	70,250
Lake trout fry	38,752,000
Lake trout, impregnated eggs	8,000,000
Bluefin fry	26,760,000
Whitefish fry	5,720,000
Wall-eyed pike fry	149,797,000
Black bass fry	762,000
Black bass, advanced fry	647,000
Black bass fingerling	8,000
Pickerel fry	750,000
Muskellunge fry	225,000
Green Bay trout fry	360,000
White bass fingerling	49,000
White bass and perch fingerling	41,250
Perch fingerling	129,100
Miscellaneous	2,962,176
	247,079,876

SUMMARY OF OUTPUT OF HATCHERIES, 1914.

Madison Hatchery:

Brook trout, advanced fry	1,617,000
Rainbow trout, advanced fry	1,860,000
Adult brook trout	1,500
Adult rainbow trout	12,000
	3,490,500

Bayfield Hatchery:

Brook trout, advanced fry	4,161,600
Rainbow trout, advanced fry	1,250,000
Rainbow trout fingerling	70,250
Brook trout fingerling sent to Wild Rose	10,000
Brook trout fry sent to Madison and Wild Rose hatcheries	32,000
Lake trout fry	8,378,000
Bluefin fry	9,360,000
Furnished fairs and aquariums	240
	23,262,090

Oshkosh Hatchery:

Wall-eyed pike fry	40,279,000

Minocqua Hatchery:

Wall-eyed pike fry	36,784,000
Black bass fry	762,000
Pickerel fry	750,000
Muskellunge fry	225,000
	38,521,000

Delafield Hatchery:

Wall-eyed pike fry	36,244,000
Black bass, advanced fry	647,000
Black bass fingerling	8,000
	36,899,000

**Wild Rose Hatchery:*

Brook trout, advanced fry	1,052,000
Rainbow trout, advanced fry	2,096,500
	3,148,500

Sturgeon Bay Hatchery:

Lake trout fry	14,600 000
Bluefin fry	12,000,000
Green Bay trout	360,000
	26,960,000

Sheboygan Hatchery:

Lake trout fry	15,784,000
Whitefish fry	5,720,000
Bluefin fry	5,400,000
Lake trout eyed eggs exchanged	100,000
	27,004,000

Spooner Hatchery:

Wall-eyed pike fry	36,490,000

Mississippi River:

Black bass fingerlings planted back in Mississippi river	185,995
Rough fish, fingerlings planted back in Mississippi river	2,619,415
	2,805,410

Neenah Below Dam:

White bass fingerling rescued and distributed	10,000
White bass fingerling, rescued and planted above dam	39,000
White bass and perch fingerling, rescued and distributed	41,250
Perch fingerling, rescued and distributed	12,100
Perch fingerling, rescued and planted above dam	117,000
	219,350

State Fair exhibit	1,026
Lake trout impregnated eggs	8,000,000
	8,001,026
Total	247,079,876

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* 2,000,000 eyed brook trout eggs to Bayfield.

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SUMMARY OF FISH PLANTED BY WISCONSIN FISH COMMISSION SINCE ESTABLISHMENT.

Year.	Brook trout.	Rainbow trout.	Salmon.	Carp.	White-fish.	Lake trout.	Wall-eyed pike.	Black bass.	White bass.	Muskel-lunge.	Pickerel.	Yellow perch.	Miscel-laneous.	Total.
1877	179,000		67,500		6,295,000	1,677,000								8,217,500
1878	93,009		77,800		8,850,000	2,980,000								12,800,000
1879			88,210		5,000,000									5,088,210
1880	930,250				5,800,000	30,600,000								10,230,259
1881	1,988,900			‖163										1,088,163
1882	828,590				6,000,000									6,828,500
1883	1,339,000				16,000,000		8,000,000							25,330,000
1884	2,605,000	95,000		‖253	17,000,000		9,700,000							38,800,000
1885	1,510,000	600,000		‖6,765			14,500,000							16,616,765
1886	2,275,000	630,000		‖556	33,210,000		3,450,000							39,571,556
1887	2,900,000	1,345,000		‖17,165	31,500,000	500,000	8,800,000							45,093,165
1888	2,285,000	1,590,000		‖25,512	18,000,000	700,000	4,450,000							27,050,512
1889	2,190,000	2,615,000		5,230	30,000,000	5,850,000	14,050,000							54,710,230
1890	3,320,000	3,460,000		‖35,591	27,472,500	*27,472,500	14,680,000							76,568,091
1891	2,620,000	2,415,000		‖9,855	35,000,000	*1,536,000	6,000,000		5,200,000					52,780,855
1892	3,245,000	3,340,000		‖8,700	14,000,000	*10,704,000	13,595,000							44,872,700
1893	1,635,000	1,675,000		‖5,050	35,000,000	*14,249,000	5,500,000	‖29,000						58,096,050
1894	3,785,000	2,605,000		‖8,125	33,000,000	*10,777,000	9,600,000	‖73,000	§4,960					59,853,085
1895	2,556,000	1,470,000		‖8,525	15,000,000	*22,100,000	23,100,000	‖116,000	§2,345					64,275,770
1896	3,110,000	1,611,000			27,500,000	†22,710,000	25,250,000	‖156,634	§13,500					69,120,089
1897	1,949,000	1,241,000			18,000,000	‡10,010,000	23,300,000	‖4,400	§9,115	1,100,000				55,618,615
1898	1,852,500	1,180,000			3,000,000	7,362,900	53,980,000	‖112,200	§23,420					67,760,120
1899	2,208,000	1,005,500				16,848,000	60,190,000	‖68,665	§15,100					80,455,755
1900	2,393,000	1,653,000				30,797,500	69,850,000			100,000	7,090,000			111,793,500
1901	1,866,500	1,068,500			34,450,000	19,980,000	78,200,000	‖44,270		472,500	*5,840,000			132,921,770
1902	2,569,000	1,299,000			66,820,000	17,877,000	37,325,000	‖10,200		80,000				126,150,200
1903	1,512,500	1,050,000			87,500,000	16,168,000	49,170,000	‖318,000		100,000	*2,080,000		200,125	105,089,625
1904	2,090,000	2,283,750			20,375,000	20,463,000	37,825,000	‡549,900		50,000			100,200	83,737,850
1905	2,937,000	1,362,000			15,278,000	18,803,000	76,800,000	‡341,300	‖1,463,000	50,000		‖723,880	252,700	118,010,980
1906	2,442,500	1,673,000			53,780,000	16,197,500	79,140,000	‡940,550	‖3,500	800,000	*5,180,000	‖18,000	23,575	160,409,125
1907	**1,980,000	1,558,500			27,025,000	19,724,000	44,900,000	‡409,500	‖1,250	420,900	†2,870,000		146,026	99,034,276
1908	**2,272,000	2,098,500			12,210,000	12,345,000	112,075,000	‡779,800		†452,000	5,859,000		1,255,769	149,338,009
1909	**2,460,000	**2,358,800	Bluefin		17,720,000	22,282,000	85,010,000	‡1166,400	‖1,000	†920,000	1,920,000		8,227,190	142,065,390
1910	**3,323,800	**2,616,500			1,600,000	25,650,600	70,990,000	‡851,700		76,000	600,000		1,156,098	106,864,698
1911	**4,898,000	**3,088,000	4,375,000		3,750,000	32,034,080	121,750,000	1,400,200		200,000	580,000		514,255	172,590,535
1912	**7,250,400	**2,719,200	3,150,000		10,080,000	22,174,167	153,240,000	236,762		125,000	2,405,250		867,523	180,074,135
1913	**6,543,000	**4,090,000	28,000,000	Bullhead	5,000,000	21,925,300	115,690,000	1,212,000	‖58,500	100,000	2,300,000		1,179,390	234,164,115
		[1]15,625	[1]15,625	‖23,000		*4,680,000	*42,790,000	‖544,925			‖12,375			
1914	**6,830,600	**5,206,500	14,760,000		5,720,000	38,762,000	149,797,000	762,000	‖49,000	225,000	750,000	‖129,100	2,962,176	247,079,876
		‖70,250	*12,000,000			*8,000,000		**647,000	[2]41,250					
						[3]360,000		‖8,000						

* Impregnated eggs. † Eggs and fry. ‡ Fry and fingerlings. § Adult fish. ‖ Fingerlings. ** Advanced fry.

[1] Yearling. [2] White bass and perch fingerling. [3] Green Bay trout.

Note—Fish planted in fry stage unless otherwise indicated.

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